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(51) INT CL<sup>7</sup>  
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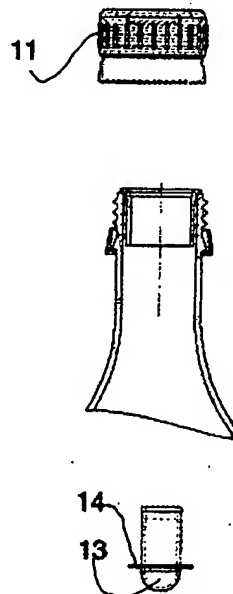
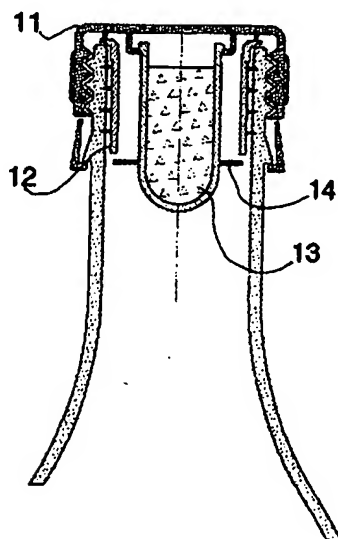
(52) UK CL (Edition T )  
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B8T TWX

(56) Documents Cited  
GB 2009089 A GB 1567394 A  
US 4903828 A US 4615437 A

(58) Field of Search  
UK CL (Edition T ) B8D DSC1 , B8T TRE TWX  
INT CL<sup>7</sup> B65D 51/28 81/32  
ONLINE:WPI,EPDOC,JAPIO

(54) Abstract Title  
Container having means for adding a fluid to a bulk liquid

(57) For adding a fluid to a bulk liquid in a container, a closure cap (11) is provided with a mounting sub-assembly (12), which engages as an interference fit in an outlet of the container when initially applied, and a receptacle (13) for the fluid. On raising the cap (11), a projection (14) of the receptacle (13) engages the bottom of the mounting sub-assembly (12), causing the receptacle (13) to be disengaged from the cap (11) and fall into the liquid in the container.

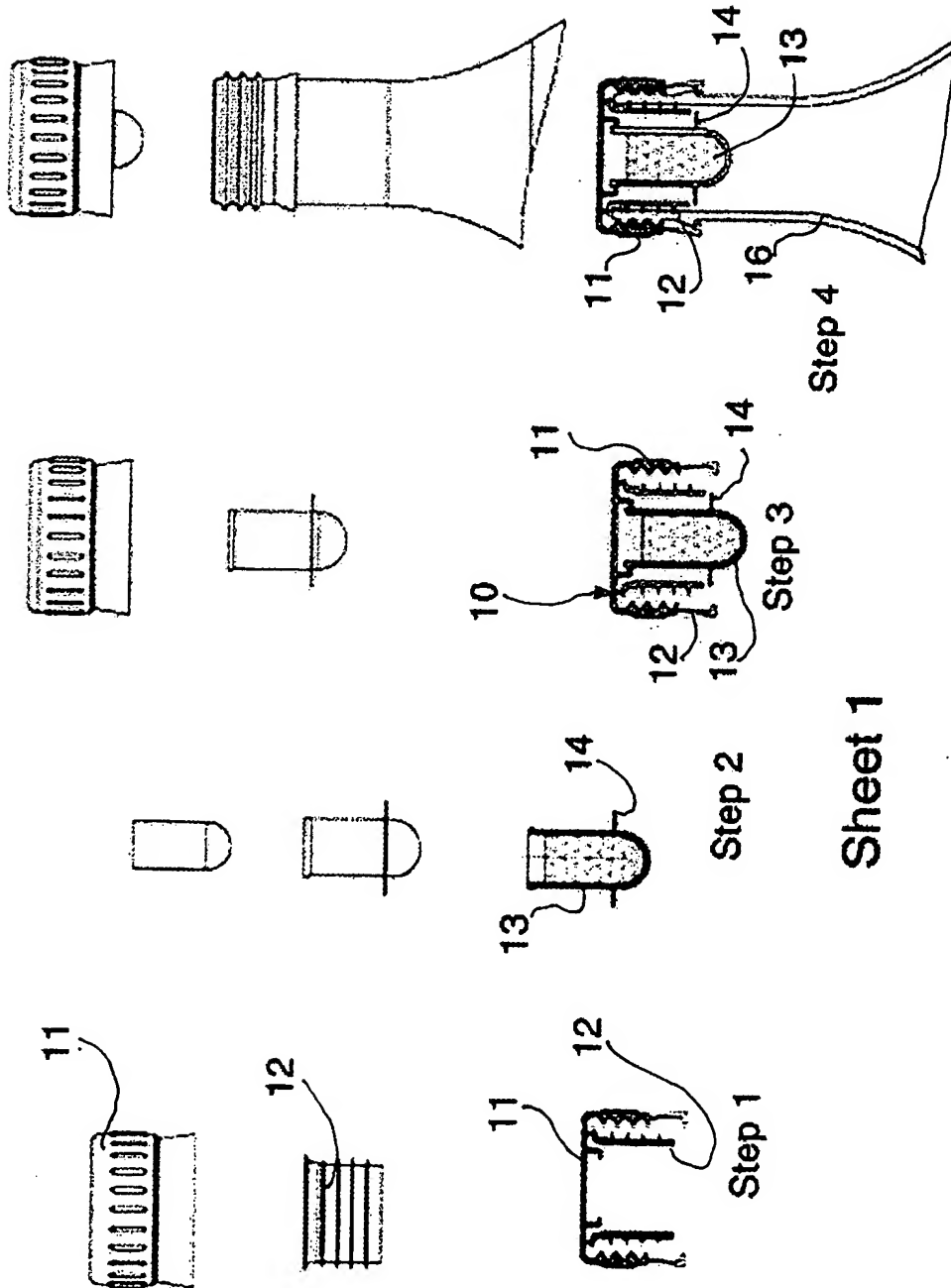


At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy. The claims were filed later than the filing date but within the period prescribed by Rule 25(1) of the Patents Rules 1995. This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

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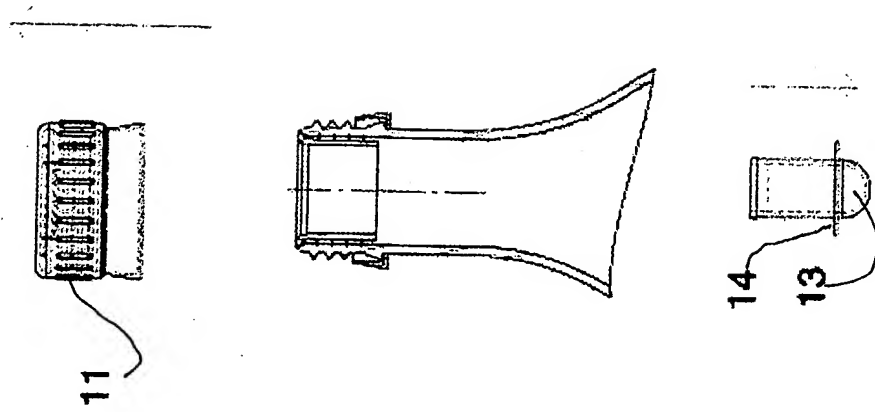
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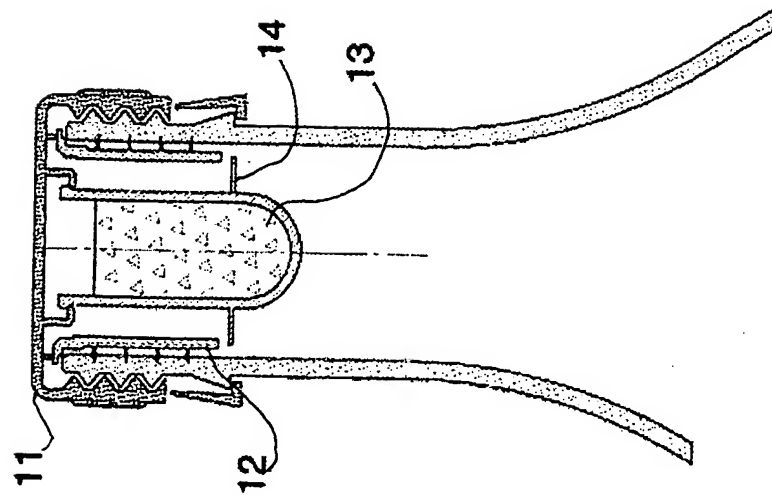
Sheet 1

12 + 4 02

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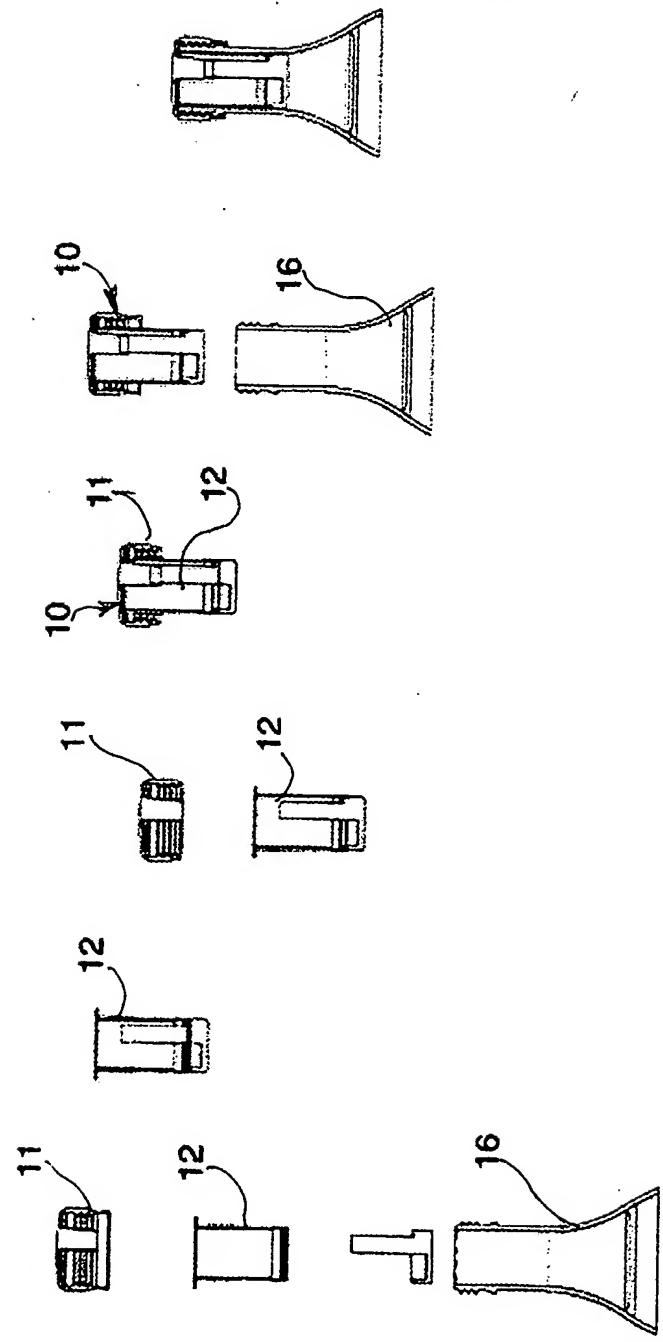


Sheet 2



3 4 02

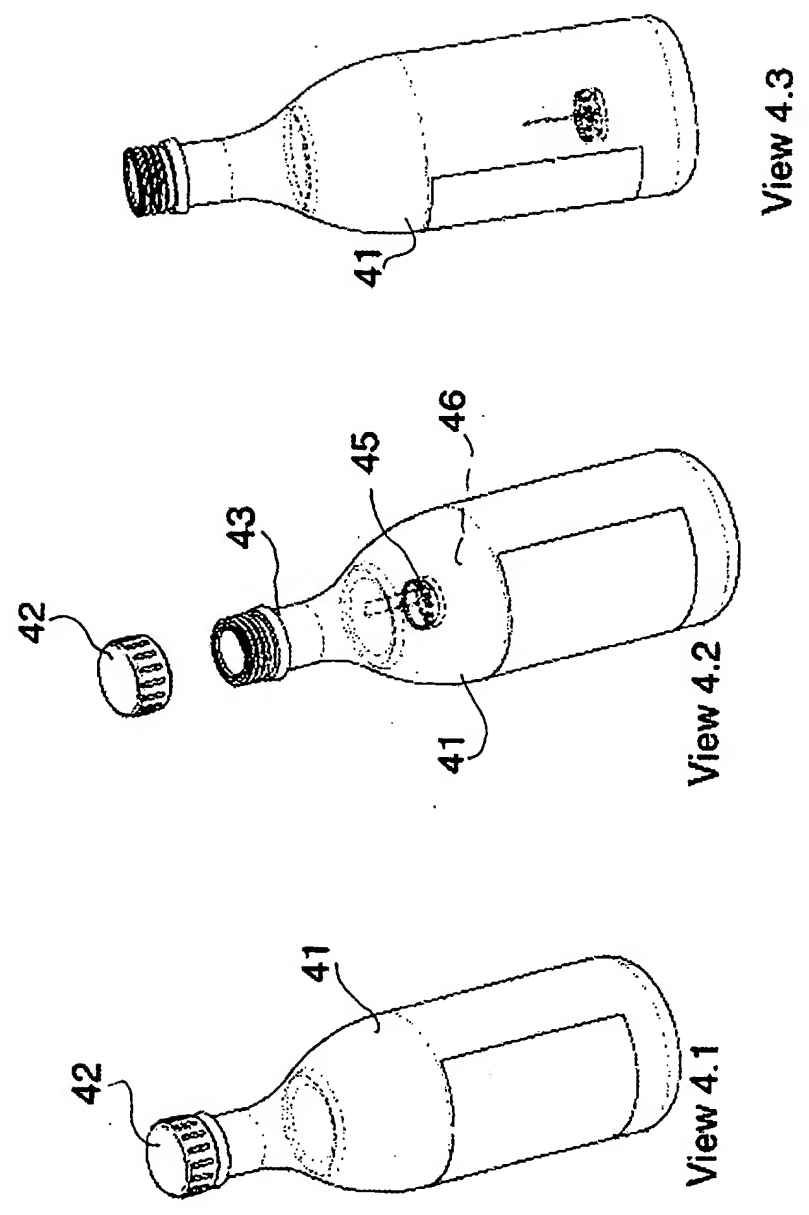
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Sheet 3

12 4 02

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Sheet 4

## METHOD AND DEVICE FOR ADDING A FLUID TO A BULK LIQUID.

This invention relates to a method and device for adding a fluid to a bulk liquid.

- 5 According to a first aspect of the present invention there is provided a method of adding a fluid to a bulk liquid comprising the steps of:
- 1 providing a container for the bulk liquid with an outlet for liquid from the container, the outlet having an internal bore, the outlet being closable by a demountable closure;
  - 10 2 locating in the closure prior to mounting it on the outlet a mounting sub-assembly having an outside periphery which is an interference fit in the internal bore, the mounting sub-assembly having an internal passage;
  - 3 locating in the mounting sub-assembly an additive sub-assembly so that the additive sub-assembly is retained by the closure independently of the retention  
15 of the mounting sub-assembly by the closure;
  - 4 providing on the additive sub-assembly a projection which extends to an extent that any attempt to draw the additive sub-assembly axially through the internal passage beyond a datum position by means of the closure results in the projection preventing further axial displacement of the additive sub-assembly  
20 relative to the mounting sub-assembly and the detachment of the additive sub-assembly from the closure so that the additive sub-assembly is left unsupported within the container and can thereby fall into the bulk liquid for admixture therewith.
- 25 According to a second aspect of the present invention there is provided a closure for a bulk liquid container which container is provided with an outlet having an internal bore which is demountably closable by the closure characterised by:
- a cap adapted for demountable attachment to the outlet;
  - a mounting sub-assembly axially located by first means on the cap and  
30 projecting from the cap for one-time engagement with the internal bore;

an additive sub-assembly axially located by second means on the cap to lie within the mounting sub-assembly; the additive sub-assembly being provided with a projection such that in the event of the additive sub-assembly being axially displaced beyond a given distance by means of the cap in a first direction relative to the mounting sub-assembly (such as when the mounting sub-assembly is located in an internal bore) then the projection serves to contact the mounting sub-assembly or an extension thereof with subsequent detachment of the additive sub-assembly from the cap leaving the additive sub assembly free to fall into a container in which the mounting sub-assembly is mounted.

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Exemplary embodiments of the invention will now be described with reference to the accompanying drawing of which:

Sheet 1 shows by a series of steps 1 to 4 diagrammatic cross sections of a closure device 10 comprising a cap 11, mounting sub-assembly 12, additive sub-assembly 13 and projection 14. The closures device 10 is used to close a container 15 for a bulk container 16 for liquid.

Sheet 2 shows the components described in connection with Sheet 1 in more detail.

Sheet 3 shows the individual components of Sheet 1 as separate manufactured components.

Sheet 4 shows a container 41 firstly (View 4.1) in its storage and delivered state . View 4.2 shows cap 42 removed from neck 43 of container 41 causing additive sub-assembly 45 to fall into bulk liquid 46 in the container 41 so releasing additive into the bulk liquid 46 for admixture therewith. Mounting sub-assembly 47 remains fixed in position in the neck 43 of the container 41.

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By means of the invention it is possible to provide a closure containing an additive which is readily incorporated in, for use with, a conventional bottling machinery. The use of an additive in this way provides for greater flexibility in use of bottling plant,

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ready provision of different additives for a given bulk liquid, and for greater user interest in preparing the product for use.

Variants in the basic version are readily achieved falling within the broad concept  
5 disclosed.



## CLAIMS

- 1 A method of adding a fluid to a bulk liquid comprising the steps of:
  - providing a container for the bulk liquid with an outlet for liquid from the container, the outlet having an internal bore, the outlet being closable by a demountable closure;
  - locating in the closure prior to mounting it on the outlet a mounting sub-assembly having an outside periphery which is an interference fit in the internal bore, the mounting sub-assembly having an internal passage;
  - locating in the mounting sub-assembly an additive sub-assembly so that the additive sub-assembly is retained by the closure independently of the retention of the mounting sub-assembly by the closure;
  - providing on the additive sub-assembly a projection which extends to an extent that any attempt to draw the additive sub-assembly axially through the internal passage beyond a datum position by means of the closure results in the projection preventing further axial displacement of the additive sub-assembly relative to the mounting sub-assembly and the detachment of the additive sub-assembly from the closure so that the additive sub-assembly is left unsupported within the container and can thereby fall into the bulk liquid for admixture therewith.
- 2 A closure for a bulk liquid container which container is provided with an outlet having an internal bore which is demountably closable by the closure characterised by:
  - a cap adapted for demountable attachment to the outlet;
  - a mounting sub-assembly axially located by first means on the cap and projecting from the cap for one-time engagement with the internal bore;
  - an additive sub-assembly axially located by second means on the cap to lie within the mounting sub-assembly; the additive sub-assembly being provided with a projection such that in the event of the additive sub-assembly being axially displaced beyond a given distance by means of the cap in a first

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direction relative to the mounting sub-assembly (such as when the mounting sub-assembly is located in an internal bore) then the projection serves to contact the mounting sub-assembly or an extension thereof with subsequent detachment of the additive sub-assembly from the cap leaving the additive sub assembly free to fall into a container in which the mounting sub-assembly is mounted.

- 3 A method of adding a fluid to a bulk liquid as hereinbefore described with reference to the accompanying drawings.
- 4 A device for adding a fluid to a bulk liquid as hereinbefore described with reference to the accompanying drawings.



Application No: GB 0101117.0  
Claims searched: 1 to 4

Examiner: Mike Henderson  
Date of search: 14 May 2002

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.T): B8D (DSC1) B8T (TRE TWX)

Int Cl (Ed.7): B65D 51/28 81/32

Other: ONLINE:WPI,EPODOC,JAPIO

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2009089A (WELLA AG) (Whole disclosure relevant)	
A	GB 1567394 (L'OREAL) (Whole disclosure relevant)	
A	US 4903828 (FINKE et al) (Whole disclosure relevant)	
A	US 4615437 (FINKE et al) (Whole disclosure relevant)	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.